

MEMORANDUM OF AGREEMENT

BETWEEN

THE UNITED STATES DEPARTMENT OF ENERGY

AND

THE POWER REACTOR AND NUCLEAR FUEL DEVELOPMENT CORPORATION, JAPAN

IN THE AREA OF

FAST REACTOR MIXED OXIDE FUEL PERFORMANCE CODES

This Agreement, to be called "The Fuel Performance Code Agreement," is made between the United States Department of Energy (hereinafter referred to as "DOE" and the Power Reactor and Nuclear Fuel Development Corporation, Japan (hereinafter referred to as "PNC") both hereinafter called the "Parties."

WHEREAS

DOE and PNC have agreed to cooperate in selected areas of applicable fast breeder reactor technology including Fuels and Materials under their Agreement in the field of LMFBRs signed on January 31, 1979 (hereinafter referred to as the "LMFBR Agreement") which superseded the Arrangement between the United States Atomic Energy Commission (USAEC) and PNC signed on March 4, 1969.

Pursuant to the Energy Reorganization Act of 1974, the USAEC was abolished and all functions transferred to and vested in the United States Energy Research and Development Administration (ERDA).

Pursuant to the Department of Energy Organization Act of 1977, ERDA was abolished and all functions transferred to and vested in DOE.

DOE and PNC have a mutual interest in the development of fuels and materials for LMFBRs, including the analysis and modeling of the irradiation behavior of mixed plutonium oxide and uranium oxide (mixed oxide) fuels.

DOE has developed fuel performance codes for use in the analysis and modeling of the irradiation behavior of mixed oxide fuels, and PNC has conducted similar fuel performance code work.

DOE and PNC have a mutual interest in the further development of fast reactor mixed oxide fuel performance codes.

IT IS AGREED AS FOLLOWS

ARTICLE 1 - OBJECTIVE

1.1 The objective of cooperation under this Agreement is to undertake a joint experimental and analytical program (hereinafter referred to as the "Program") in the development and application of mixed oxide fuel performance codes (hereinafter referred to as the "Fuel Performance Codes").

1.2 This cooperation shall be a joint project under and as envisaged by Article 3.7 of the LMFBR Agreement. Articles 6, 7, 8, 11, 12, 13 and 14 of the LMFBR Agreement are hereby incorporated by reference.

ARTICLE 2 - PROGRAM

2.1 Development of an agreed detailed work plan, to include agreed definitions on the limitation of access to the computers of each Party.

2.2 Exchange of information on the following topics related to the development and application of agreed Fuel Performance Codes of each Party:

- a. Fuel and cladding models and other details of agreed Fuel Performance Codes.
- b. Methodology used in the calibration of the agreed Fuel Performance Codes.
- c. Characteristics of specific reference and advanced mixed oxide fuel pins used in the thermal and mechanical calibration of agreed Fuel Performance Codes.
- d. Use of statistical methods in fuel pin design.

2.3 Assignment of two PNC engineers to the Westinghouse Advanced Reactor Division (WARD) to participate in the joint development and application of Fuel Performance Codes and the interpretation of code results.

2.4 Short visits by specialist teams or individuals to the Fuel Performance Code facilities of each Party, as mutually agreed.

2.5 Comparative analyses by each Party of fuel pin performance by making use of the Fuel Performance Codes developed under this Program.

2.6 Preparation of monthly joint letter reports and quarterly joint detailed reports concerning the work in progress under the Program, and the issuance of these reports by DOE.

ARTICLE 3 - MANAGEMENT

- 3.1 The DOE/PNC Joint Coordinating Committee, which was established pursuant to the exchange of letters between ERDA and PNC dated January 19, 1976 and March 5, 1976, and to Article 4 of the LWFAR Agreement, shall be responsible for the review, evaluation, assessment and approval of the Program to be conducted under this Agreement.
- 3.2 For periods between meetings of the DOE/PNC Joint Coordinating Committee, each Party shall designate one person to act on its behalf in all matters concerning cooperation under this Agreement.

ARTICLE 4 - FINANCIAL TERMS

- 4.1 PNC shall provide, in accordance with procedures to be identified by DOE, a financial contribution in United States dollars to help defray the cost of items of the Program in which PNC will be cooperatively involved.
- 4.2 PNC payments to DOE under Article 4.1 above shall be made in accordance with the following schedule:

March 1980	\$250,000
June 1980	\$250,000
December 1980	\$160,000
April 1981	\$40,000
March 1982	\$500,000

4.3 The ability of the Parties to carry out their obligations is subject to the availability of appropriated funds.

ARTICLE 5 - ATTACHMENT OF STAFF

- 5.1 Short term visits of RNC or RNC contractor staff to DOE or DOE contractors in connection with the Program shall be made at no cost to the Receiving Party.
- 5.2 Long-term assignments of one month or more in connection with the Program shall be the subject of separate personnel assignment agreements pursuant to Article 11 of the LMFBR Agreement.

ARTICLE 6 - PATENTS

Under the authority of Article 9.1.c. of the LMFBR Agreement, any invention or discovery made or conceived in the course of or under exchanges of personnel shall be governed by Article 9.1.a. of the LMFBR Agreement, and rights to other inventions or discoveries shall be distributed in accordance with Article 9.1.b. of the LMFBR Agreement. Subparagraphs 2, 3 and 4 of that Article shall be applicable as appropriate.

ARTICLE 7 - DURATION

- 7.1 This Agreement shall enter into force upon signature, shall continue until March 31, 1982, and may be extended by mutual consent. The implementation and progress of the Program may be subject to review by the Parties.

7.2 This Agreement may be terminated at any time at the discretion of either Party upon 6 months advance notification in writing by the Party seeking to terminate the Agreement. Such termination shall be without prejudice to the rights which may have accrued under this Agreement to either Party up to the date of such termination.

7.3 All joint efforts and experiments not completed at the termination of this Agreement may be continued until their completion under terms of this Agreement.

Done at Tokyo in duplicate, this 11th day of March, 1980.

FOR THE UNITED STATES
DEPARTMENT OF ENERGY

FOR THE POWER REACTOR AND NUCLEAR FUEL
DEVELOPMENT CORPORATION, JAPAN

Signature: Billy Hill

Signature: Masayoshi Iida

Name: Billy HILL

Name: Masayoshi IIDA

Title: DOE Representative

Title: Vice President